IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A substantially ~~Substantially~~ pure chromium dioxide (CrO_2) having saturation magnetization of at least 120 ~~115~~ emu/gm.

2. (canceled)

3. (currently amended) The substantially pure chromium ~~Chromium~~ dioxide according to claim 1 ~~2~~ having saturation magnetization of 126 emu/gm for sintered pellets.

4. (currently amended) The substantially pure chromium ~~Chromium~~ dioxide according to claim 1 ~~2~~ having saturation magnetization of 132 to 135 emu/gm for cold pressed form.

5. (currently amended) The substantially pure chromium ~~Chromium~~ dioxide according to claim 1 ~~2~~, which is in polycrystalline form.

6. (currently amended) The substantially pure chromium ~~Chromium~~ dioxide according to claim 1 having negative magnetoresistance of at least 0.5% near room temperature at 2 Tesla.

7. (currently amended) The substantially pure chromium ~~Chromium~~ dioxide according to claim 6 having negative magnetoresistance of at least 2% near room temperature at 2 Tesla.

8. (currently amended) The substantially pure chromium ~~Chromium~~ dioxide according to claim 7 having negative magnetoresistance of about 5% near room temperature at 2 Tesla.

9. (previously presented) Composites of chromium dioxide and chromium sesquioxide (CrO_2/Cr_2O_3) having negative magnetoresistance of atleast 0.5% near room temperature at 2 Tesla.

10. (currently amended) The composites ~~Composites~~ according to claim 9, having negative magnetoresistance of atleast 2% near room temperature at 2 Tesla.

11. (currently amended) The composites ~~Composites~~ according to claim 10, having negative magnetoresistance of atleast 5% near room temperature at 2 Tesla.

12. (currently amended) The composites ~~Composites~~ according to claim 11, having negative magnetoresistance of 8% near room

temperature at 2 Tesla for a 25% molar Cr_2O_3 composite, which is cold pressed.

13. (currently amended) The composites ~~Composites~~ according to claim 11, having negative magnetoresistance of 33% near room temperature at 2 Tesla for a 40% molar Cr_2O_3 composite, which is sintered.

14. (currently amended) The composites ~~Composites~~ according to claim 9, having saturation magnetization of 75 emu/gm at 5K for a sintered 40% molar Cr_2O_3 composite.

15. (currently amended) The composites ~~Composites~~ according to claim 9, having saturation magnetization of 103 emu/gm at 5K for a cold pressed composite of 25% molar Cr_2O_3.

16. (previously presented) Composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) having negative magnetoresistance of atleast 0.5% near room temperature at 2 Tesla.

17. (currently amended) The composites ~~Composites~~ according to claim 16, having negative magnetoresistance of atleast 2% near room temperature at 2 Tesla.

18. (currently amended) The composites ~~Composites~~ according to claim 17, having negative magnetoresistance of atleast 5% near room temperature at 2 Tesla.

19. (currently amended) The composites ~~Composites~~ according to claim 18, having negative magnetoresistance of about 8% at 2T near room temperature for a sintered composite with 80 emu/g M_S.

20. (currently amended) The composites ~~Composites~~ according to claim 18, having negative magnetoresistance of about 22% at 2T near room temperature for a sintered composite with 60 emu/g M_S.

21. (currently amended) The composites ~~Composites~~ according to ~~claims~~ claim 9 ~~or 16~~, which can be obtained in cold and sintered form.

22. (currently amended) The composites ~~Composites~~ according to claim 9 ~~or 16~~, which is homogenous.

23. (currently amended) The composites ~~Composites~~ according to claim 9 ~~or 16~~, which is obtainable in any ratio of the constituent compounds.

24. (currently amended) The composites ~~Composites~~ according to claim 9 ~~or 16~~, which has substantial reproducibility in sintered form.

25. (currently amended) A process for manufacture of substantially pure chromium dioxide (CrO_2), or composites of chromium dioxide and chromium sesquioxide (CrO_2/Cr_2O_3) or composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) comprising heating an intermediate oxide, primarily Cr_8O_{21} to a temperature of between 350 and 500°C for a period of between 1-5 hours whereby substantially pure chromium dioxide (CrO_2), or composites of chromium dioxide or chromium sesquioxide (CrO_2/Cr_2O_3) or composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) are formed.

26. (currently amended) The ~~A~~ process according to claim 25, wherein intermediate oxide is converted to said substantially pure chromium dioxide CrO_2 when the temperature is maintained between 390-400°C or to a composite of chromium dioxide and chromium sesquioxide (CrO_2/Cr_2O_3) when the temperature is maintained between 400-500°C or to a composite of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) when the temperature is maintained between 350-390°C.

27. (currently amended) The ~~A~~ process according to claim 25, wherein intermediate oxide, primarily Cr_8O_{21} used in the process of the invention is prepared by heating CrO_3 and maintaining the temperature in the range of 230-320°C, preferably in the range 250-280°C.

28. (currently amended) The ~~A~~ process according to ~~any of claims~~ claim 25 ~~to 27~~, wherein said CrO_3 is heated and maintained in the said temperature range for 6-14 hours, preferably 8-12 hours.

29. (currently amended) The ~~A~~ process according to claim 28, wherein CrO_3 is heated in dry oxygen/air.

30. (currently amended) The ~~A~~ process according to claim 28, wherein CrO_3 is heated at about atmospheric pressure.

31. (currently amended) The ~~A~~ process according claim 28, wherein CrO_3 is heated slowly to raise the temperature to about 250^{0}C and then maintained in the said temperature range.

32. (currently amended) The ~~A~~ process according to claim 25, wherein intermediate oxide thus formed is cooled slowly to room temperature preferably at the same rate as it was heated.

33. (currently amended) The ~~A~~ process according to claim 25, wherein intermediate oxide is crushed in powder form.

34. (currently amended) The ~~A~~ process according to claim 25, wherein the said intermediate oxide in powder form is sealed in a tube or can be palletized and sintered before sealing in a glass tube.

35. (currently amended) The ~~A~~ process according to ~~any of the claims~~ claim 25 ~~to 34~~, wherein the temperature of intermediate oxide is maintained in the said range for 2-3 hrs.

36. (currently amended) The ~~A~~ process according to ~~any of the claims~~ claim 27 ~~to 35~~, wherein in the composites of CrO_2/Cr_2O_3 and CrO_2/Cr_2O_5, the mass fraction of Cr_2O_3 or Cr_2O_5 can be systematically varied by varying the temperature between 350 ~~400~~ and 500^{0}C.

37. (currently amended) A substantially ~~Substantially~~ pure chromium dioxide (CrO_2) manufactured by a process for manufacture of substantially pure chromium dioxide (CrO_2), or composites of chromium dioxide and chromium sesquioxide (CrO_2/Cr_2O_3) or composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) comprising heating an intermediate oxide, primarily Cr_8O_{21} to a temperature of between 350 and 500^{0}C for a period of between 1-5 hours whereby substantially pure chromium dioxide (CrO_2), or composites of chromium dioxide or chromium sesquioxide (CrO_2/Cr_2O_3) or composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) are formed ~~according to claim 25~~.

38. (currently amended) Composites of chromium dioxide and chromium sesquioxide (CrO_2/Cr_2O_3) manufactured by a process

for manufacture of substantially pure chromium dioxide (CrO_2), or composites of chromium dioxide and chromium sesquioxide (CrO_2/Cr_2O_3) or composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) comprising heating an intermediate oxide, primarily Cr_8O_{21} to a temperature of between 350 and 500°C for a period of between 1-5 hours whereby substantially pure chromium dioxide (CrO_2), or composites of chromium dioxide or chromium sesquioxide (CrO_2/Cr_2O_3) or composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) are formed ~~according to claim 25~~.

39. (currently amended) Composites of chromium dioxide and CrO_5 (CrO_2/Cr_2O_5) manufactured by a ~~the~~ process for manufacture of substantially pure chromium dioxide (CrO_2), or composites of chromium dioxide and chromium sesquioxide (CrO_2/Cr_2O_3) or composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) comprising heating an intermediate oxide, primarily Cr_8O_{21} to a temperature of between 350 and 500°C for a period of between 1-5 hours whereby substantially pure chromium dioxide (CrO_2), or composites of chromium dioxide or chromium sesquioxide (CrO_2/Cr_2O_3) or composites of chromium dioxide and Cr_2O_5 (CrO_2/Cr_2O_5) are formed ~~according to claim 25~~.

40. (new) The composites according to claim 16, which can be obtained in cold and sintered form.

41. (new) The composites according to claim 16, which is homogenous.

42. (new) The composites according to claim 16, which is obtainable in any ratio of the constituent compounds.

43. (new) The composites according to claim 16, which has substantial reproducibility in sintered form.

44. (new) The substantially pure chromium dioxide according to claim 5 having negative magnetoresistance of at least 2% near room temperature at 2 Tesla.